



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,474	02/07/2001	G. Rodney Nelson	2479.1067-001	4700
21005	7590	01/12/2006	EXAMINER	
HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133			TSEGAYE, SABA	
			ART UNIT	PAPER NUMBER
			2662	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/778,474	Applicant(s) NELSON ET AL.	
	Examiner Saba Tsegaye	Art Unit 2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 and 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>08/18/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This office Action is in response to the amendment filed on 10/14/05. Claims 1-27 and 29 are pending. Currently no claims are in condition for allowance.

Specification

2. The Attorney' docket number indicated on page 1 should be deleted as it is not relevant to the application. See MPEP 608.01.

Claim Rejections - 35 USC § 103

3. Claims 1, 20 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jalali et al. (US 5,828,662) hereafter Jalali in view of Giallorenzi et al. (US 6,332,008) hereafter Giallorenzi.

Regarding claims 1 and 25, Jalali discloses a method for supporting wireless communications, the method comprising the steps of;

allocating a first channel to support message transmissions from a base station to multiple field units (see fig. 5, 501 (column 6, lines 62-65);

allocating a second channel to support message transmissions from the field units to the base station (see fig 4, 401 (column 5, lines 4-10);

assigning time slots in the first and second channel for message transmissions between the base station and field units (see figs. 4 and 5; 4c and 5c); and

maintaining synchronization between a selected one of the field units and the base station (synch message sent by the mobile on the uplink is used to maintain synchronization; see figs. 3 and 4). However, Jalali does not expressly disclose that by analyzing a message received in a time slot and adjusting timing of the selected one field unit by transmitting a feedback message to the selected field unit.

Giallorenzi teaches that by estimating the offset of a received signal and providing appropriate feedback to the subscriber unit it is possible to ask the subscriber unit to adjust its transmit time (column 12, lines 17-23).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a system that adjust timing of the selected one field unit by transmitting a feedback message to the selected field unit, such as that suggested by Giallorenzi, to the system of Jalali in order to make sure that the subscriber unit stays completely aligned and to bring the signals received into a desired time relationship with one another.

Regarding claim 20, Jalali discloses, in fig. 3, a method for synchronizing wireless communications between a base station and a field unit, the method comprising the step of:

assigning time slots of a forward link channel to each of a plurality of field units in which a base station transmits messages, each field unit determining messages directed to the field unit based upon receipt of a message in a particular time slot (see abstract; step 301);

assigning time slots in a reverse link channel in which the field units transmit messages to the base station, the base station identifying from which field unit transmitted a message based upon reception in a particular time slot (see abstract; step 305).

However, Jalali does not expressly disclose that by analyzing a message received in a time slot and adjusting timing of the selected one field unit by transmitting a feedback message to the selected field unit.

Giallorenzi teaches that by estimating the offset of a received signal and providing appropriate feedback to the subscriber unit it is possible to ask the subscriber unit to adjust its transmit time (column 12, lines 17-23).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a system that adjust timing of the selected one field unit by transmitting a feedback message to the selected field unit, such as that suggested by Giallorenzi, to the system of Jalali in order to make sure that the subscriber unit stays completely aligned and to bring the signals received into a desired time relationship with one another.

4. Claims 1, 8-10, 12, 17-21, 25-27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jalali et al. (US 5,828,662) hereafter Jalali in view of Scot (US 6,388,997).

Regarding claims 1 and 25, Jalali discloses a method for supporting wireless communications, the method comprising the steps of;

allocating a first channel to support message transmissions from a base station to multiple field units (see fig. 5, 501 (column 6, lines 62-65);

allocating a second channel to support message transmissions from the field units to the base station (see fig 4, 401 (column 5, lines 4-10);

assigning time slots in the first and second channel for message transmissions between the base station and field units (see figs. 4 and 5; 4c and 5c); and

maintaining synchronization between a selected one of the field units and the base station (synch message sent by the mobile on the uplink is used to maintain synchronization; see figs. 3 and 4). However, Jalali does not expressly disclose that by analyzing a message received in a time slot and adjusting timing of the selected one field unit by transmitting a feedback message to the selected field unit.

Scot teaches that the base station sends a timing adjustment command to the user station instructing the user station to advance or retard its timing according to the calculated distance, so as to minimize guard times between time slots (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a system that adjust timing of the selected one field unit by transmitting a feedback message to the selected field unit, such as that suggested by Scot, to the system of Jalali in order to ensure that the users stay synchronized.

Regarding claim 8, Jalali discloses a method further comprising the step of:
dividing the first and second channel into a predetermined number of time slots to support periodic communications between the base station and each of multiple field units (see abstract; column 5, lines 4-10; column 6, lines 63-64).

Regarding claim 9, Jalali discloses a method further comprising the step of:
detecting a request by a field unit to establish a link with the base station (see fig. 1; step 103);

Art Unit: 2662

analyzing the request to determine an initial timing adjustment to be made at the field unit for synchronization; and (see fig. 1; step 105)

transmitting timing adjustment information to the field unit for synchronizing the field unit with the base station (see fig. 1; step 107).

Regarding claim 10, Scot teaches the method wherein the timing adjustment information is transmitted to a field unit over a paging channel (column 55, lines 35-50).

Regarding claim 12, Jalali discloses the method wherein field units are notified of time slot assignments based upon messages over a forward link-paging channel (see fig. 1, step 107; column 5, lines 4-10).

Regarding claims 17, 26 and 27, Jalali discloses a method further comprising the step of: assigning short PN codes for use by a field unit, a short PN code being transmitted by the field unit in an assigned time slot to provide an indication to the base station (column 6, lines 28-53).

Regarding claims 18 and 29, Jalali discloses a method wherein an assigned short PN code indicates a request by the field unit to transmit a data payload to the base station (column 6, lines 54-58).

Regarding claim 19, Jalali discloses a method wherein an assigned short PN code indicates a request by the field unit to remain in a standby mode (column 6, lines 8-35).

Regarding claim 20, Jalali discloses, in fig. 3, a method for synchronizing wireless communications between a base station and a field unit, the method comprising the step of:

assigning time slots of a forward link channel to each of a plurality of field units in which a base station transmits messages, each field unit determining messages directed to the field unit based upon receipt of a message in a particular time slot (see abstract; step 301);

assigning time slots in a reverse link channel in which the field units transmit messages to the base station, the base station identifying from which field unit transmitted a message based upon reception in a particular time slot (see abstract; step 305).

However, Jalali does not expressly disclose that by analyzing a message received in a time slot and adjusting timing of the selected one field unit by transmitting a feedback message to the selected field unit.

Scot teaches that the base station sends a timing adjustment command to the user station instructing the user station to advance or retard its timing according to the calculated distance, so as to minimize guard times between time slots (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a system that adjust timing of the selected one field unit by transmitting a feedback message to the selected field unit, such as that suggested by Scot, to the system of Jalali in order to ensure that the users stay synchronized.

Art Unit: 2662

Regarding claim 21, Jalali does not disclose a method further comprising the step of:
analyzing messages received by field units and transmitting a message on the forward link to a corresponding field unit to adjust timing on the reverse link channel.

Scot teaches that the base station sends a timing adjustment command to the user station instructing the user station to advance or retard its timing according to the calculated distance, so as to minimize guard times between time slots (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a system that adjust timing of the selected one field unit by transmitting a feedback message to the selected field unit, such as that suggested by Scot, to the system of Jalali in order to ensure that the users stay synchronized.

5. Claims 2-7, 11, 13-15 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jalali in view of Scot as applied to claim 1 above, and further in view of Gardner et al. (US 6,188,903) hereafter Gardner.

Regarding claims 2, 3 and 14, Jalali in view of Scot discloses all the claim limitations as stated above. Further, as shown in fig. 2 of Jalali, the mobile terminal broadcasts a synchronization message to the base station on the assigned SSR channel at assigned time slot. Jalali in view of Scot, however, fails to disclose the step of: partitioning the first channel into active and standby time slots, wherein active time slots correspond with field units transmitting a data payload on a reverse link traffic channel.

Gardner teaches, in fig. 13a, partitioning the first channel into active and standby time slots. Further, figs. 13b-c, show reverse link cell transmissions from subscriber units restricted to

Art Unit: 2662

portions of the inactive forward link transmission periods. By restricting reverse link transmissions from subscriber units to occur only during a portion of the periods when the forward link transmissions are active (claimed where active time slots correspond with field units transmitting a data payload on a reverse link traffic channel) (column 13, line 47-column 14, line 20).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Jalali's forward channel to partitioning into active and standby time slots, as taught by Gardner. The motivation is that the number of potential interferers can be reduced while still maintaining a very low loading and an acceptable error rate (column 13, lines 55-63).

Regarding claim 4, Jalali discloses a method further comprising the step of reassigning a field unit a standby time slot in the first channel after completion of the data transfer (maintaining a constant link between the base station and the plurality of mobile terminals with a pilot signal).

Regarding claims 5, 11, 13 and 22 Scot teaches that the base station sends a timing adjustment command to the user station instructing the user station to advance or retard its timing according to the calculated distance, so as to minimize guard times between time slots.

Regarding claim 6 and 7, Jalali discloses that when the mobile terminal transmits its preamble on its assigned SSR channel time slot, it will consist of K repetitions of the SSRC-PN

Art Unit: 2662

(a long PN code that differentiates different sectors is used to mask the SSRC-PN) (column 6, lines 28-52).

Regarding claims 15, 23 and 24, Jalali in view of Scot discloses all the claim limitations as stated above. Furthermore, Scot teaches that a timing adjustment command may be expressed in terms of a number of bits or chips (see fig. 12 A; timing adjustment command of 3 bits). However, Jalali in view of Scot does not expressly disclose a single bit in a time slot indicates whether a corresponding field unit should advance or retard timing. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute a single bit to the timing adjustment command of 3 bit of Scot so as to increase the speed of transmitting information using a single bit by avoiding a long code scrambling or interleaving.

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jalali in view of Scot as applied to claim 1 above, and further in view of Park et al (US 6,396,823).

Jalali in view of Scot discloses all the claim limitation as stated above except for the transmission is encoded using BCH.

Park discloses a base station transceiver in a CDMA system that utilizes BCH encoding (the invention provides a base station for scrambling Bose-Chaudhuri- Hocquenghem BCH encoded data; see col. 3 lines 22-30).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Jalali's base station to transmit BCH encoded data in the forward link direction, as taught by Park. The motivation is to provide a fast, accurate, and efficient

Art Unit: 2662

system. It is known in the art that BCH encoding is an accurate and efficient method that enables the subscriber on the receiving end to detect and correct errors.

Response to Arguments

7. Applicant's arguments with respect to claims 1-27 and 29 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saba Tsegaye whose telephone number is (571) 272-3091. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ST
January 6, 2006


JOHN PEZZLO
PRIMARY EXAMINER